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FM 11-15

DEPARTMENT OF THE ARMY FIELD MANUAL

*Superseded by FM 11-27
(30 Mar. 53)*

SIGNAL CABLE CONSTRUCTION BATTALION

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HEADQUARTERS, DEPARTMENT OF THE ARMY
OCTOBER 1959

FIELD MANUAL

SIGNAL CABLE CONSTRUCTION BATTALION

FM 11-15 } HEADQUARTERS
CHANGES No. 1 } DEPARTMENT OF THE ARMY
WASHINGTON 25, D.C., 20 March 1963

FM 11-15, 15 October 1959 is changed as follows:

1. Purpose

This manual provides * * * cable construction battalion. Developments in tactical and technological fields, new concepts of operations, and organizational changes in the Army will make modifications of this manual necessary. Users of this manual are encouraged to submit recommended changes or comments to improve this manual. Comments should be keyed to the specific page, paragraph, and line of the text in which the change is recommended. Comments should be forwarded direct to the Fort Monmouth Office, US Army Communications-Electronics Combat Developments Agency, Fort Monmouth, N.J., ATTN: Doctrine Division. Recommendations should be based on anticipated wartime missions and should not be peculiar to a single theater of operations.

9. Battalion

a. A local battery telephone switchboard is provided within the battalion headquarters section of the headquarters detachment for local telephone service, service to the headquarters of the combat area signal group, and connections to the army area communication system (fig. 2).

* * * *

22. General

a. The company commander * * * and administrative matters. Based on these orders, the company commander assigns projects to the construction platoons.

* * * *

24. Construction Platoon

The construction platoon leader receives instruction from, and is assigned projects by, the company commander. Normally, these instructions * * * require unattended repeaters.

* * * *

26. Construction Section

* * * *

c. (Superseded) Once the circuits are installed and operating, the maintenance of the cable and unattended repeaters becomes the responsibility of the army area signal center, when so directed by higher headquarters, or of the signal cable construction battalion should the circuits be installed to echelons of army headquarters.

27. Section Headquarters

Each construction section * * * the construction

teams. When organizing his teams, the section chief may assign special duties to teams or elements of teams, such as line route survey, hasty pole construction, policing of cable laid on the ground, or assisting in the resupply of cable for the section.

* * * * *

29. General

* * * * *

a. Nuclear blast and the resulting radiological activity.

* * * * *

31. Defense Plans

* * * * *

b. Each platoon leader and section chief must know the type and number of available weapons and the amount of effective fire power available for concentration by his platoon or section; each man must know, and be trained in, his assignment in the defense plan.

* * * * *

APPENDIX REFERENCES

* * * * *

2. Publications

Add the following publications in numerical order:

FM 11-21	Tactical Signal Communication Systems, Army, Corps and Division.
FM 11-86	Combat Area Signal Battalion, Army.

- FM 11-92 Corps Signal Battalion.
- FM 11-95 Army Signal Battalion.
- FM 24-20 Field Wire and Field Cable Techniques.
- TM 11-372 Lead Sheath Cable Splicing.
- TM 11-381 Cable Assembly CX 1065/G.
- TM 11-486-5 Electrical Communication Systems Engineering. Outside Plant, Wire.
- TM 11-487A Military Handbook. Electrical Communications Equipment.
- TM 11-2150 Telephone Carrier Systems Using Telephone Repeater AN/TCC-11.
- TM 11-2262 Outside Plant Wire: Construction and Maintenance.

By Order of the Secretary of the Army:

EARLE G. WHEELER,
General, United States Army,
Chief of Staff.

Official:

J. C. LAMBERT,
Major General, United States Army,
The Adjutant General.

Distribution:

Active Army:

DCSLOG (5)	Bde (2)
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CRD (5)	USAIS (40)
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CofCh (3)	USAES (150)
USCONARC (5)	USASCS (725)
USAMC (15)	PMS Sr Div Units (2)
OS Maj Comd (10)	PMS Jr Div Units (2)
OS Base Comd (5)	PMS Mil Sch Div Units (2)
USACDC (20)	GENDEP (OS) (2)
USACSG (5)	Sig Sec. GENDEP (2)
USACAG (5)	Sig Dep (OS) (2)
USA CD Agcy (2)	Army Dep (2)
MDW (1)	MAAG (2)
Armies (10)	Mil Msn (2)
Corps (2)	Units org under fol TOE:
USA Corps (1)	11-45 (10)
Div (2)	

NG: State AG (1); units—same as Active Army except allowance is one copy to each unit.

USAR: Same as Active Army except allowance is one copy to each unit.

For explanation of abbreviations used, see AR 320-50.

FIELD MANUAL

No. 11-15

HEADQUARTERS,
DEPARTMENT OF THE ARMY
WASHINGTON 25, D. C., 15 October 1959

SIGNAL CABLE CONSTRUCTION BATTALION

	Paragraph	Page
CHAPTER 1. INTRODUCTION		
Section I. General		
Purpose -----	1	4
Scope -----	2	4
Mission -----	3	4
Assignment -----	4	5
Capabilities -----	5	5
Control -----	6	6
Organization and mobility--	7	6
Employment -----	8	7
II. Communications		
Battalion -----	9	7
Company -----	10	8
CHAPTER 2. HEADQUARTERS AND HEADQUARTERS DETACHMENT		
Mission -----	11	9
Assignment -----	12	9
Capabilities -----	13	9
Location -----	14	10
Organization -----	15	10
Employment -----	16	12
3. SIGNAL CABLE CON- STRUCTION COMPANY		
Section I. General		
Mission -----	17	15
Assignment -----	18	15
Capabilities -----	19	15
Location -----	20	17
Organization -----	21	17

	Paragraph	Page
Section II. Employment		
General	22	17
Company headquarters	23	19
Construction platoon	24	19
Platoon headquarters	25	20
Construction section	26	20
Section headquarters	27	21
Construction teams	28	21
CHAPTER 4. SECURITY		
General	29	22
Defense measures	30	22
Defense plans	31	22
Individual defense	32	23
Installation defense	33	24
Mine clearing	34	24
Camouflage	35	25
Defense against air attack	36	25
Defense against guerilla action	37	25
Defense against chemical attack	38	26
Defense against biological attack	39	26
Defense against nuclear attack	40	26
Destruction of equipment	41	27
5. SUPPLY AND MAINTENANCE		
Section I. Supply		
General	42	28
Battalion supply system	43	28
Requirements	44	28
Supply economy	45	29
Inspections	46	29

Section II. Maintenance

General	47	29
Preventive maintenance	48	34
Maintenance inspections	49	34

CHAPTER 6. TRAINING

General	50	36
Objectives	51	36
Training cycle	52	37
Basic combat training	53	37
Advanced individual training	54	39
Unit training	55	39
Field exercise and maneuver training	56	40
Post-cycle training	57	41
Modification of program	58	41
Training aids	59	41
Supplementary training	60	42

7. TYPE OPERATION OF A
SIGNAL CABLE CON-
STRUCTION BATTAL-
ION

Section I. General

Field army communication system	61	43
Transmission media	62	44

II. Signal cable construction bat-
talion

Situation	63	44
Headquarters and headquar- ters detachment	64	45
Cable splicer and repair sec- tion	65	46
Company A employment	66	46
Company B employment	67	47
Company C employment	68	49

APPENDIX. REFERENCES	--	50
----------------------------	----	----

CHAPTER 1

INTRODUCTION

Section I. GENERAL

1. Purpose

This manual provides information and guidance on the employment and operation of a signal cable construction battalion.

2. Scope

This manual covers the organization, employment, mission, equipment, operations, and capabilities of a signal cable construction battalion and is based on TOE 11-45(). It presents material that is applicable without modification to both nuclear and nonnuclear warfare.

3. Mission

The mission of a signal cable construction battalion is—

a. To install signal field cable circuits in the field army area.

b. To perform limited rehabilitation and maintenance of existing indigenous cable (lead and rubber covered) and open wire circuits.

c. To perform limited field cable recovery and field cable repair in the field army area.

4. Assignment

a. To army. Normally assigned to Combat Area Signal Group TOE 11-32.

b. To army group and theater as required.

5. Capabilities

a. At full strength, the signal cable construction battalion provides the following facilities:

- (1) Installs designated signal field cable circuits in the field army area to include installation in trenches or on temporary poles.
- (2) Rehabilitates indigenous open wire and lead or rubber covered cable lines in the field army area.
- (3) Assists combat area signal companies in the field army area in the installation of field cable trunk circuits.
- (4) Performs limited recovery and repair of field cable in the field army area.

b. The reduced strength column of TOE 11-45() provides lesser capabilities for personnel and equipment during prolonged noncombat periods and for a limited period of combat.

c. TOE 11-45() is not adaptable to Type B organization.

d. This unit is dependent on appropriate medical units in the area.

e. Individuals of this unit, except the chaplain, can fight as infantrymen when required. The unit has the capability of defending itself and its installations against hostile ground attack.

6. Control

a. The Army Signal Officer, under authority delegated by the Commander, normally exercises operational control over the combat area signal group, Army. The combat area signal group, Army, has command control of the signal cable construction battalion.

b. The executive officer is provided to assist the signal cable construction battalion commander. The adjutant supervises the administrative functions of the battalion; consolidated personal administration is performed at battalion headquarters. The maintenance and logistic functions are supervised by S4 and the motor officers. The companies have a unit mess and second echelon motor maintenance capability.

c. Operations, training, and intelligence functions of the battalion are supervised by a battalion S2/3, who is the operations officer. He also coordinates the employment of special purpose construction vehicles.

d. The battalion depends on the army signal supply and maintenance battalion for signal supply support. This is coordinated by the battalion S4. He also coordinates with the construction companies on the utilization of heavy vehicles to transport field cable and other construction materials as required.

7. Organization and Mobility

a. A signal cable construction battalion (fig. 1) consists of a headquarters and headquarters detachment and three identical signal cable construc-

tion companies. These units are category II units (AR 320-5).

b. The battalion is approximately 90 percent mobile. Headquarters and headquarters detachment is approximately 75 percent mobile. Each of the signal cable construction companies is 90 percent mobile.

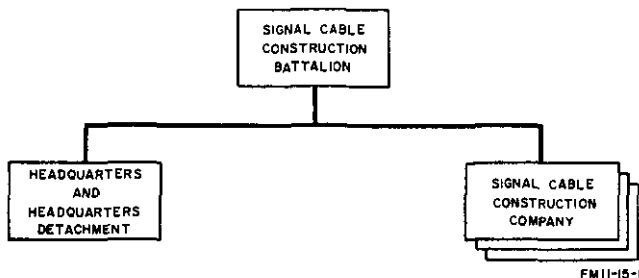


Figure 1. Organization of signal cable construction battalion.

8. Employment

An illustrative example of the employment of the signal cable construction battalion in a typical situation is shown in figure 5.

Section II. COMMUNICATIONS

9. Battalion

a. A local battery telephone switchboard is provided within the battalion headquarters section of the headquarters detachment for local telephone service, service to the headquarters of the combat area signal group, army, and connections to the army area communication system (fig. 5).

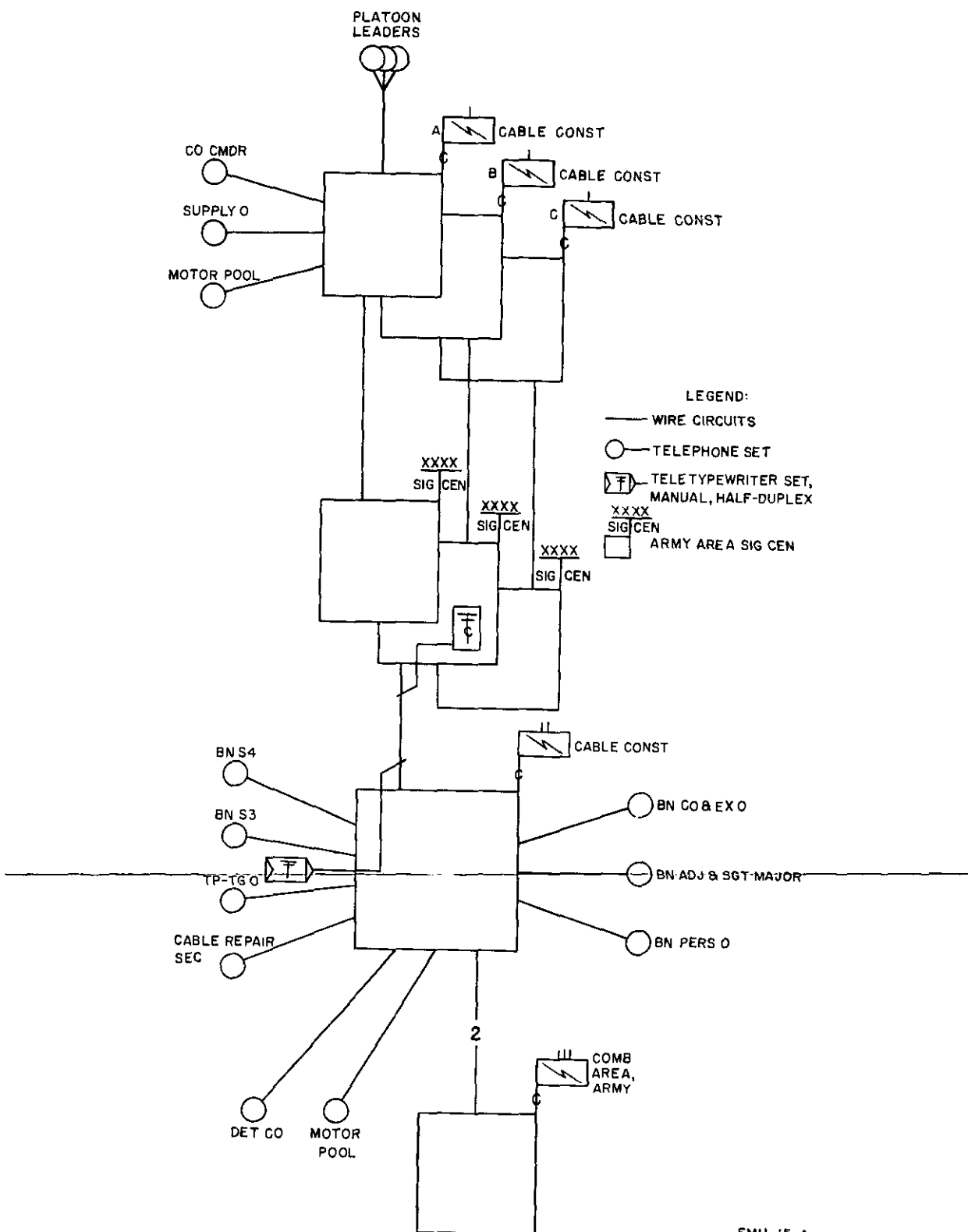
b. Telephone communication for the battalion is provided generally as shown in figure 2 to enable the battalion commander and his staff to coordinate the activities of the battalion.

c. The teletypewriter communication shown in figure 2 is used to connect battalion headquarters into teletypewriter subscriber service.

10. Company

a. Each signal cable construction company is provided with a local battery switchboard and telephones to establish telephone communication for the company headquarters and the platoon headquarters.

b. Each signal cable construction company uses the signal facilities provided by the army area communication system to coordinate and control its operations.



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Figure 2. Type telephone-teletypewriter system diagram for signal cable construction battalion.

CHAPTER 2

HEADQUARTERS AND HEADQUARTERS DETACHMENT

11. Mission

The mission of the headquarters and headquarters detachment, signal cable construction battalion, is to—

a. Direct and coordinate operations and training of a signal cable construction battalion and to provide command, administrative, and logistic support for the battalion.

b. Provide consolidated personnel administration, supervision of supply, and supplemental motor and signal maintenance for the battalion.

c. Provide limited rehabilitation and maintenance of existing indigenous cable in the field army area, and limited field cable repair for the battalion.

12. Assignment

The Headquarters and Headquarters Detachment, Signal Cable Construction Battalion, TOE 11-46 (), is organic to the Signal Cable Construction Battalion, TOE 11-45 ().

13. Capabilities

a. At full strength, this unit has the following capabilities:

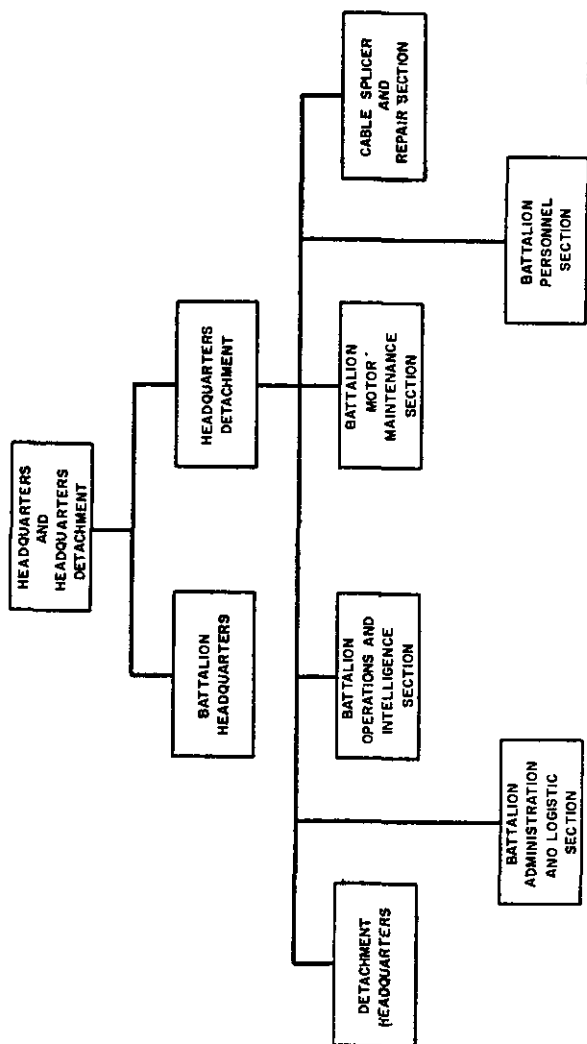
- (1) Commands, plans, controls, and coordinates the operations and training of a signal cable construction battalion.
- (2) Provides administrative and logistic support for a signal construction battalion to include—
 - (a) Consolidated personnel administration.
 - (b) Battalion supply and supplemental signal and motor maintenance.
 - (c) Limited field cable repair for the battalion.
- (3) Provides limited rehabilitation and maintenance of existing indigenous lead cable.
 - b. The reduced strength column of TOE 11-46 () provides lesser capabilities for personnel and equipment during prolonged noncombat periods and for a limited period of combat.
 - c. TOE 11-46 () is not adaptable to Type B organization.
 - d. Individuals of this unit, except the chaplain, can fight as infantrymen when required. This unit has the capability of defending itself and its installations against hostile ground attack.

14. Location

The battalion headquarters and headquarters detachment normally is located in the vicinity of the army area signal group headquarters and normally is employed in one echelon.

15. Organization

The detachment consists of a battalion head-



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Figure 3. Organization of headquarters and headquarters detachment.

quarters and a headquarters detachment (fig. 3). The headquarters detachment has a detachment headquarters and five operating sections.

16. Employment

a. The headquarters and headquarters detachment provides the means by which the battalion commander exercises command, administrative, operational, and logistical control over the companies of the battalion. The battalion headquarters contains the battalion commander and his staff. The battalion commander normally operates under the immediate supervision of the commander of the combat area signal group, army. The battalion commander exercises command control of the battalion through his staff and by personal supervision of the various functions and missions of the battalion. The battalion executive, the S1, the S4, and the motor officer supervise the logistical and administrative functions of the battalion and coordinate these functions with the administrative and logistical section of the combat area signal group, army. An S2/3 is provided as the operations and intelligence officer. Detachment headquarters operates the mess, supply and internal communication facilities for the battalion headquarters. The detachment mess steward is also the battalion food service supervisor.

b. The detachment sections are employed as follows:

- (1) The operations and intelligence section provides personnel and facilities with which the battalion S2/3 supervises the

operations, training, and intelligence missions of the battalion. This section must maintain close liaison and direct communication with the operations section of the combat area signal group, army, to facilitate effective operational control and supervision of the signal construction companies. The telephone-telegraph officer of the battalion operations and intelligence section assists the S2/3 in planning the operations and training of the construction companies.

- (2) The battalion personnel section performs consolidated personnel functions for the construction companies of the battalion and provides the personnel to assist the adjutant (S1) in carrying out the personnel functions of the battalion.
- (3) The battalion motor maintenance section provides battalion supervision of motor vehicle maintenance, organizational motor vehicle maintenance for headquarters and headquarters detachment, and augmentation of the construction companies' vehicle maintenance when required. A gasoline tank truck is provided to support all elements of the battalion.
- (4) The cable splicer and repair section provides the personnel and equipment to perform cable rehabilitation. The section provides personnel and facilities for repair of field cable for construction companies of the battalion. Organizational

repair and maintenance of unattended carrier repeaters are also provided by personnel assigned to this section.

CHAPTER 3

SIGNAL CABLE CONSTRUCTION COMPANY

Section I. GENERAL

17. Mission

The mission of the signal cable construction company is to perform—

a. Signal field cable construction in the field army area.

b. Limited rehabilitation of existing indigenous cable (lead or rubber covered) and open wire circuits when augmented by direct support of the personnel in the cable splicer and repair section of Headquarters and Headquarters Detachment, Signal Cable Construction Battalion, TOE 11-46().

c. Limited field cable recovery in the field army area.

18. Assignment

The signal cable construction company TOE 11-47(), is organic to the signal cable construction battalion, TOE 11-45().

19. Capabilities

a. At full strength this unit provides the following facilities:

- (1) Installs spiral-four circuits and associated unattended repeaters in the field army area.

- (a) Approximately 150 miles per day when laid on the ground.
 - (b) Approximately 100 miles per day when installed in trenches or placed on existing poles or trees.
 - (c) Approximately 50 miles per day on light messenger wire on temporary or hasty pole lines.
- (2) Rehabilitates indigenous open wire and cable lines in the field army area when augmented by personnel of the cable splicer and repair section of Headquarters and Headquarters Detachment, Signal Cable Construction Battalion, TOE 11-46().
 - (3) Assists combat area signal battalions, army, in the installation of signal field cable circuits.
 - (4) Performs recovery of field cable in the field army area.
 - (5) Provides command, planning, and operational control of organic wire teams.
 - (6) Provides mess facilities, supply, and organizational signal and motor maintenance for the company.

b. The reduced strength column of TOE 11-47() provides lesser capabilities for personnel and equipment during prolonged noncombat periods and for a limited period of combat.

c. TOE 11-47() is not adaptable to Type B organization.

d. Individuals of this unit can fight as infantrymen when required. This unit has the capability of defending itself and its installations against hostile ground attack.

20. Location

Normally, each signal cable construction company will be located well forward in the army area or in the best location to control its construction platoons. A typical location is the vicinity of the headquarters of a combat area signal battalion. This will facilitate coordination with the combat area signal battalion.

21. Organization

Each signal cable construction company consists of a company headquarters and three cable construction platoons (fig. 4). Each cable construction platoon contains three (full strength) construction sections and a platoon headquarters. Each construction section has a section headquarters and three teams.

Section II. EMPLOYMENT

22. General

a. The company commander receives orders from the battalion commander concerning command, operational, and administrative matters. Based on these orders, the company commander, assisted by the company operations officer, assigns projects to the construction platoons.

b. When performing assigned missions, the company may be employed as a unit, by platoons, or by

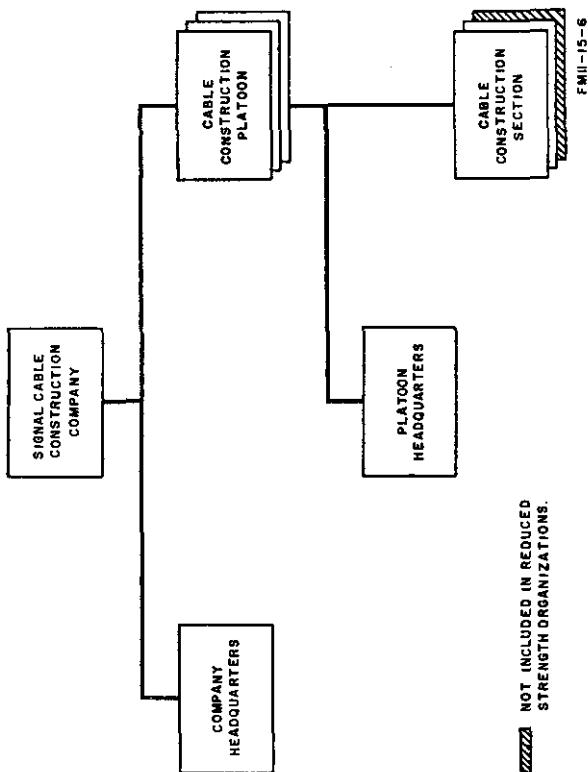


Figure 4. Organization of signal cable construction company.

sections, depending on the magnitude and priority of the assigned projects. In the performance of this mission, the company commander must maintain close liaison with the signal units being supported.

23. Company Headquarters

The company headquarters provides personnel for command and administrative supervision of the company. It also provides personnel for mess facilities, company supply, and organizational motor vehicle maintenance.

24. Construction Platoon

The construction platoon leader receives instructions from, and is assigned projects by, the company commander or the company executive officer. Normally, these instructions or projects will be for installation of field cable circuits. These circuits will normally require unattended repeaters.

a. When circuits are installed to echelons of army headquarters, the platoon mission will also include the maintenance of the cable and unattended repeaters.

b. When circuits are installed to corps and division signal centers, the maintenance of circuits will normally be the responsibility of the field cable installation platoon of the combat area signal company responsible for the terminal carrier equipment operating on the system.

25. Platoon Headquarters

a. The platoon headquarters includes the platoon leader, the platoon sergeant, assistant platoon sergeant, and special purpose truck drivers. The drivers are assigned as full-time drivers of the special purpose trucks of the platoon. These special purpose vehicles are pooled at platoon level and used as required by the construction sections. If cable must be buried, a cable plow can be drawn from company headquarters and assigned to a construction section for this purpose.

b. The platoon leader maintains close contact with the company, keeps the company headquarters informed of the status of assigned projects, and is responsible to the company commander for the physical security of the construction platoon.

26. Construction Section

a. Three construction sections constitute the operating elements of the platoon. The construction section is the smallest element of the company that normally will be assigned a specific construction project or support mission.

b. When the construction section is required to lay field cable that will require the use of loading coils, these coils should be picked up from the construction company headquarters or from the signal company operating the army area signal center.

c. Once the circuits are installed and operating, the maintenance of the cable and unattended repeaters becomes the responsibility of the army area signal center when so directed by higher headquarters.

27. Section Headquarters

Each construction section has a section headquarters consisting of one sergeant who provides technical and operational supervision of the construction teams. When organizing his teams, the section leader may assign special duties to teams or elements of teams, such as line route survey, hasty pole construction, policing of cable laid on the ground, or assisting in the resupply of cable for the section.

28. Construction Teams

a. Three construction teams make up the basic working elements of the section. The teams are 100 percent mobile and can perform the missions of installation, maintenance, and recovery of field cable.

b. Each team consists of eight enlisted men: a team chief, six linemen and one unattended repeater installer. The team chief and the repeater installer must be trained in, cable construction, carrier techniques, and troubleshooting as they will normally perform these duties as members of the team.

CHAPTER 4

SECURITY

29. General

Security embraces all measures taken to protect the unit against—

- a.* Atomic blast and the resulting radiological activity.
- b.* Attack by enemy ground, air, and airborne elements.
- c.* Chemical and biological warfare attack.
- d.* Harassment by guerilla forces.
- e.* Enemy observation.

30. Defense Measures

Defense measures may be active, passive, or a combination of both. Active defense is the opposition to attack by limited offensive action against the enemy. Passive defense is based on protection, deception, dispersion, and concealment. It is the defense of an installation or personnel without the employment of active weapons and without the expectation of taking the initiative. Because the signal cable construction battalion has a limited number of weapons for active defense, it depends primarily upon passive defense for security.

31. Defense Plans

Security of signal installations is accomplished according to a plan developed by the commander.

An adequate defense plan covers four essential points:

a. Defense measures must apply to all adjacent areas and to all directions from which an enemy attack can be expected. Measures must include an adequate alarm system that consists of observers and available means of signal communication to warn of hostile activity.

b. Each platoon and section leader must know the kind and number of available weapons and the amount of effective fire power available for concentration by his platoon or section; each man must know, and be trained in, his assignment in the defense place.

c. Suitable protective shelters and field fortifications must be planned, constructed, and made available to all unit personnel.

d. Principal security elements must be established. These elements include guard posts and guard patrols who give warning of air, ground, chemical-biological-radiological (CBR), or other enemy attack, and who also enforce blackout and camouflage discipline.

32. Individual Defense

Because of the possible use of mass destruction weapons and attacks by enemy ground, air, airborne, and guerilla elements in a theater of operations, every member of the unit must anticipate sudden and unexpected assaults and be prepared to cope with them through proficiency in the elements of individual defense. These elements include—

- a.* Use of CBR detection devices.
- b.* Use of protective clothing, gas masks, and individual antidotes.
- c.* Construction of fox holes, slit trenches, and other hasty field fortifications.
- d.* Use of weapons.
- e.* Techniques of unarmed defense.

33. Installation Defense

The following defense measures must be observed continuously at each installation :

- a.* Maximum dispersion of vehicles, personnel, and equipment without loss of effective control.
- b.* Posting of adequate guards and CBR sentries.
- c.* Maintenance of blackout discipline when directed by higher headquarters.
- d.* Maintenance of camouflage discipline.
- e.* Formulation of specific plans of defense against air, ground, guerilla, and CBR attacks by enemy forces.
- f.* Digging in of equipment whenever possible.

34. Mine Clearing

The unit commander must insure that mines, booby traps, and other explosive material are cleared from the bivouac areas and adjacent areas, and from all other areas in which the unit operates. Such clearance should be accomplished by trained personnel in accordance with practices and procedures prescribed by the corps of engineers. The advice or assistance of engineer troops may be requested when the task is unusual in magnitude or complexity.

35. Camouflage

Camouflage discipline is the responsibility of the unit commander. He must insure that maximum camouflage effort is employed. Natural and artificial camouflage materials are employed for protection against enemy observation. Land features, such as wooded areas, caves, and cliffs, are utilized to obtain protection.

36. Defense Against Air Attack

Measures to be employed against air attack include—

- a.* Dispersion of facilities within an installation or area.
- b.* Concealment of structures and service areas or use of deception measures.
- c.* Maximum use of terrain features.
- d.* Blackout discipline.
- e.* Concealment of vehicle tracks.
- f.* Unobstrusive siting of motor parks and equipment stores.
- g.* Construction of foxholes and other shelters.

37. Defense Against Guerilla Action

The possibility of guerilla action against signal installations demands effective security and defense measures. These measures include troop, supply, and installation security.

- a.* Guerilla activity is frequently directed toward capturing equipment and supplies for future use in other guerilla operations. Since communication supplies are an especially valuable prize, effective security measures for these supplies are essential.

Lack of security discipline permits equipment to be lost or stolen, and to be used later by guerilla forces.

b. Sites selected for signal installations must be secure against guerilla action. Both stationary guards and roving patrols should be employed. Their duty tours should be short, and they should be rotated frequently to keep them alert on duty and minimize the possibilities of sabotage and guerilla attack.

38. Defense Against Chemical Attack

Protection against enemy chemical attack is an important defense consideration. Such defense measures include—

- a. Use of gas masks.
- b. Use of protective clothing.
- c. Use of gasproof shelters.
- d. Training of sentries in gas detection and warning.
- e. Protection of food and water supplies.
- f. Use of decontamination techniques.

39. Defense Against Biological Attack

Protection against the use of biological warfare by the enemy includes the following defense measures:

- a. Use of protective clothing and equipment.
- b. Use of shelters.
- c. Observing the principles of military sanitation.
- d. Protection of food and water supplies.
- e. Use of decontamination techniques.

40. Defense Against Nuclear Attack

Protection against shock, blast, flash, radiation, and other effects of nuclear warfare includes the following defense measures:

- a.* Use of gas masks and protective clothing.
- b.* Use of underground shelters for personnel, equipment and supplies.
- c.* Dispersion of personnel and equipment.
- d.* Use of fire fighting apparatus.
- e.* Establishment of a warning system.
- f.* Use of radiological detecting instruments.
- g.* Use of personnel decontamination centers.

41. Destruction of Equipment

When it becomes necessary to abandon an installation, materiel that cannot be evacuated is destroyed to prevent possible use or study by the enemy. Destruction of facilities and supplies is ordered by the subordinate unit commander, as directed by higher authority. It is accomplished according to the destruction plan prepared and maintained by the subordinate unit commander.

a. A well prepared destruction plan is detailed and comprehensive. It includes operations that are simple and easy to perform, but which are consistent with those procedures prescribed in appropriate technical manuals.

b. Destruction is accomplished as rapidly as possible and as thoroughly as time permits. Adequate precautions also must be taken for the protection of friendly personnel and their equipment. The same essential components on like or similar equipments must be destroyed to prevent possible utilization by the enemy.

CHAPTER 5

SUPPLY AND MAINTENANCE

Section I. SUPPLY

42. General

The acquisition and proper distribution of supplies plays a vital part in the successful accomplishment of the units mission. The unit commander must be familiar with the status of supplies and equipment within his organization at all times. He must issue such guidance and direction as is essential to insure supplies are adequate to support the unit mission. Close coordination between S3, S4 and the battalion commander is necessary, at all times, to insure an adequate supply and resupply of material.

43. Battalion Supply System

The signal cable construction battalion operates under centralized supply procedure. The following factors must be considered when establishing battalion supply procedures:

- a.* Current supply directives.
- b.* Dispersion of organic units.
- c.* Transportation.
- d.* Supply sources.
- e.* Mission to be performed.

44. Requirements

Requirements will initially be computed on the

basis of applicable TA, TOE, EML, and current DA supply manuals (or applicable portion of 5 part Technical Manuals). Constant review is necessary in order to adjust equipment and repair parts allowances to meet actual and anticipated requirements. Equipment required in excess of authorized allowances are to be requested in accordance with AR 725-5.

45. Supply Economy

Commanders at every level must rigidly supervise the practice of conservation of material by all personnel within their command. In addition to the responsibility of command, every individual, whether or not he has personally signed for the material he is using, is responsible for its care, preservation, and conservation. Commanders will insure that principles of supply economy are continuously practiced.

46. Inspections

Command inspections are made periodically as directed by higher headquarters. These inspections check accuracy of records, supplies and equipment on hand, overages, shortages, serviceability, and storage. In addition, local inspections are conducted by the commanding officer, staff members, and company commanders.

Section II. MAINTENANCE

47. General

Maintenance is the care necessary to keep equipment in good working condition. It includes both

the ordinary care exercised by operators and users, and the repair work performed by trained technicians. The categories and echelons of maintenance are as follows :

Maintenance of signal battalion equipment	
Categories	Echelons
ORGANIZATIONAL	
Who: Performed by the using organization.	FIRST
What: Consists of inspecting, cleaning, servicing, preserving, lubricating, adjusting, and replacing such minor parts as spark plugs or radio tubes.	Work performed by the man or crew using the equipment. It is the heart of preventive maintenance and the critical link in the entire army maintenance system. It must be regular and systematic. At the first sign of trouble, the operator must tell the organization mechanic.
Responsibility: Organization commander.	SECOND
	Work requiring basic skill and performed by trained or organization mechanics, using tools, test equipment and repair parts. They replace minor parts and subassemblies and perform periodic inspections and lubrications that are the vital second half of preventive maintenance. Each individual applies preventive maintenance techniques as in first echelon.

Maintenance of signal battalion equipment

Categories

Echelons

FIELD

Who: Performed by maintenance activities in support of using organizations.

What: Consists primarily of repair and replacement of unserviceable parts, sub-assemblies, or assemblies. Repaired equipment is usually returned to the organization that sent it in. Third-echelon field maintenance organizations also handle repair parts supply for using organizations.

Responsibility: The Army Commander.

THIRD

Work requiring more skill and special tools. It is performed by trained maintenance units or by mobile repair crews in direct support of the using organization. It includes repair and replacement of subassemblies and assemblies. Each individual applies preventive maintenance techniques as in first echelon.

FOURTH

Work requiring tools and skill not available in third echelon. It is performed in maintenance units which often combine third and fourth echelons.

lon work. It includes repairing of major assemblies and subassemblies for return to lower echelons. Each individual applies preventive maintenance techniques as in first echelon.

DEPOT

Who: Performed by fixed or semifixed shops having extensive equipment.

What: Consists of major overhaul or complete rebuilding of parts, subassemblies, or entire major items. Rebuilt equipment is usually returned to depot stocks for reissue.

Responsibility: Chiefs of the technical services.

FIFTH

Work of a major overhaul or rebuild nature performed in a fixed installation. Normally repaired equipment is returned to stock. Production and assembly-line methods are employed whenever possible. Each individual applies preventive maintenance as in first echelon.

48. Preventive Maintenance

Preventive maintenance is the care and servicing by using personnel for the purpose of maintaining equipment in satisfactory operating condition. It provides for systematic inspections and detection and correction of incipient failures either before they occur or before they develop into major defects. Commanders are responsible for compliance with instructions and procedures for preventive maintenance operations, training of their command in preventive maintenance of equipment, and allocation of sufficient time for performance of preventive maintenance. Training in preventive maintenance is equal in importance to other functional military training. The full impact of the principles of command responsibility for preventive maintenance is often lost, especially on junior officers. It applies at every level of command from the commanding general to the platoon and squad leader. It is only through active interest by commanders at each level that a preventive maintenance program may be successfully carried out. (See DA Pam 750-1, Preventive Maintenance Guide for Commanders.)

49. Maintenance Inspections

Commanders must conduct frequent and thorough inspections to insure that maintenance is properly performed. These inspections are the means by which the commander can determine that his organization's equipment is serviceable and its maintenance program is adequate. Regulations provide for the following types of inspection:

tions: command, preventive maintenance, spot check, and command maintenance (AR 750-5, AR 750-8, AR 750-625).

CHAPTER 6

TRAINING

50. General

The purpose of training in the signal cable construction battalion is to insure the combat effectiveness of the organization. The personnel of the battalion must be proficient as combat soldiers and specialists. To achieve and maintain proficiency in both fields the soldier must be trained in both basic military and technical subjects.

51. Objectives

a. The purpose of individual training is to provide the soldier with basic military and technical skills. This type of training equips the soldier to think and act on his own initiative and gives him the individual skills required for him to participate in the accomplishment of the mission of his team, section, or platoon.

b. The purpose of team training is to organize soldiers who have particular skills and abilities into small groups, teams, sections, or platoons so that each of these elements can accomplish a specific mission or objective.

c. The purpose of unit training is to combine or integrate the individual skills and operational capabilities of the teams, platoons, and companies into an organization capable of performing the battalion's assigned mission.

52. Training Cycle

a. Personnel of a signal cable construction battalion are trained in accordance with ATP 11-45, directives from higher headquarters, and local requirements in a theater of operations.

b. The training cycle or program includes basic combat training, advanced individual training, unit training, and field exercises and maneuvers.

c. Post-cycle training will be conducted to increase operational efficiency or to perform additional special missions.

53. Basic Combat Training

a. This training provides instruction in basic military subjects and the elementary aspects of individual skills. A review of basic military subjects is conducted periodically.

b. The most vital training the individual receives is in basic military subjects, including the fundamentals of infantry and tactics. During this early training, the soldier's duty and obligation to fight is emphasized. He must learn to conform to military custom, tradition, and discipline. As an individual, he must be trained to think and act on his own initiative to further the accomplishment of the team's mission.

c. Through basic training, the individual soldier—

- (1) Learns to adjust himself to military life.
- (2) Develops a sense of individual responsibility and a clear understanding of the

moral principles and basic obligations of a soldier.

- (3) Learns to administer first aid to himself and to others.
- (4) Attains an understanding of supply economy and learns to maintain his clothing and equipment.
- (5) Learns to protect himself during CBR attacks, using his personal equipment, field expedients, and improvizations.
- (6) Learns to recognize and report information that is of interest to military intelligence.
- (7) Learns to recognize and properly safeguard classified material.
- (8) Develops a security consciousness that will assure action against subversion, infiltration, and guerilla warfare.
- (9) Acquires the ability to march a considerable distance in a reasonably short time, with sufficient energy remaining to perform his duties after the march.
- (10) Learns map reading and the use of a compass to maintain direction.
- (11) Maintains a state of physical fitness commensurate with the requirements for dismounted ground combat.
- (12) Achieves an understanding of the principles of concealment, cover, and movement, and learns to apply them under combat conditions. Becomes able to take individual protective action against air-

craft, airborne, armored, and dismounted ground attacks.

- (13) Learns the basic principles of scouting and patrolling.
- (14) Qualifies in firing individual and crew-served weapons.
- (15) Learns and practices organization and teamwork in combat, including squad tactics of the infantry rifle squad.

54. Advanced Individual Training

This type of individual training includes instruction in common or technical military occupational specialties.

a. Common specialists include clerks, cooks, drivers, mechanics, and others concerned with the administrative support of the unit. These specialists may be trained at unit schools, training centers, service schools, or they may receive on-the-job training in the unit.

b. Technical specialists include carrier equipment repairmen, construction linemen and others concerned with the technical operating aspects of the battalion.

c. On-the-job training of specialists is continuous within the unit.

55. Unit Training

a. *General.* This phase of training consists of basic military and advanced technical training for each section, platoon and company of the battalion, and finally for the battalion as a whole. It

begins as soon as minimum standards of proficiency are reached in individual training.

b. Supervision. In the initial stages of team and unit training, close supervision is necessary. However, the development of individual initiative should be encouraged. Noncommissioned officers should have ample opportunity to demonstrate their leadership and ability. Critiques by officers should be made regularly, but not so often as to curtail the continuity of operations. At the close of unit training, a thorough critique should be conducted, with the entire unit participating.

56. Field Exercise and Maneuver Training

a. This phase of training should be conducted under simulated combat situations. Particular attention should be paid to security, dispersion, cover, and concealment of equipment and personnel. During field exercises, the unit must provide communications within the scope of its mission. This includes frequent movement.

b. Command post exercises and field maneuvers which include the performance of its normal functions by the signal cable construction battalion in conjunction with other units of the command are the best tests of the battalion's readiness. They provide a true method for determining not only the effectiveness of the unit's technical training, but also its ability to accomplish its assigned mission under conditions that simulate combat conditions.

57. Post-Cycle Training

Post-cycle training is conducted for the purpose of improving the combat effectiveness of the unit.

a. Field Exercises. Field exercises may be conducted to prepare the battalion for participation in special operations. These exercises are normally conducted under conditions of terrain and climate similar to those expected in the prospective area of the operations. This training may include mountain, desert, arctic, or jungle exercises or CBR field tests.

b. Joint Training. Joint training with units of the Air Force and Navy may be necessary to prepare for certain operations.

c. Combined Training. Any and all phases of field exercises may be conducted with elements of allied forces.

58. Modification of Program

The signal unit commander may modify the training cycle when this is required to make the best use of existing facilities, to conform to conditions of the training situation, or to facilitate the attainment of the training objectives. If the program must be accomplished in less time than was originally planned, the time allotted to certain subjects may be reduced at the discretion of the unit commander. However, training in combat subjects should not be omitted or curtailed.

59. Training Aids

a. Normally, field manuals, technical manuals,

and training circulars contain sufficient instructional matter for training purposes.

b. Training films and film strips are valuable aids to instruction. However, they should not be substituted for other more appropriate methods of instruction such as classroom demonstrations, lectures, and field work. Aggressor films and film strips should be emphasized.

c. Graphic training aids are easily adapted to a variety of training purposes. Many are designed for use in conference and demonstrations. Others can be posted for review by the individual.

d. The instructors should be encouraged to use their imagination, initiative, and technical knowledge in the development of new training methods and procedures.

60. Supplementary Training

a. Training is a continuing responsibility. The unit commander should take every opportunity to repeat important phases of the training program.

b. Additional training should be devoted to the operation and organizational maintenance of special equipment which may be authorized locally but not listed in the unit TOE.

c. Additional training may be given to specialists to keep them abreast of new technical developments and modifications of existing equipment.

d. Cross-training of specialists in fields allied to their specialties is conducted on a continuing basis. When practicable, it will be accomplished by on-the-job training and in troop schools.

CHAPTER 7

TYPE OPERATION OF A SIGNAL CABLE CONSTRUCTION BATTALION

Section I. GENERAL

61. Field Army Area Communication System

a. Basically, the field army area communication system is made up of signal centers and interconnecting trunk circuits. Each signal center is assigned an area of signal service responsibility; it provides all signal services required to support the units and activities within its assigned area. Each signal center of the army area communication system is connected to at least two other army area signal centers to provide alternate routing and to distribute the traffic load more evenly.

b. For identification purposes, code name and exchange numbers are assigned to the signal centers of major commands, such as divisions, corps, and field armies. For example, the code name for the 30(US) Army (fig. 5) is Monarch, and the exchange numbers are as follows:

Command signal centers 700—709

Army area signal centers 710—745

c. The field army area communication system normally consists of 18 to 24 signal centers, interconnected by trunk circuits. The field army area communication system is installed, operated, and maintained by the combat area signal group,

army, which consists of six combat area signal battalions, army, and a signal cable construction battalion. The combat area signal battalions, army, install the army area signal centers and their interconnecting trunk circuits. The signal cable construction battalion assists the combat area signal battalions to install cable trunk circuits within the field army area as required.

62. Transmission Media

Because of the improvements in radio relay equipments and the change of the tactical concepts of the field army, radio relay is the primary transmission medium used in the field army area communication system. This does not eliminate wire as a transmission medium, since it normally is used to back up and augment radio relay systems, and to provide communications when radio relay facilities are being displaced. In addition, wire systems may be expanded, in static situations, to carry the major portion of the communication load. The principal wire facility used in the field army area communication system is field cable (spiral-four), with its associated carrier equipment. The use of field wire and multipair voice frequency cable is usually limited to local distribution facilities and for short trunk circuits.

Section II. SIGNAL CABLE CONSTRUCTION BATTALION

63. Situation

a. The 30 (US) Army (fig. 5) is in a static situation, and the requirements for signal communica-

tions are increasing steadily. To satisfy these increased requirements, it is necessary to install spiral-four field cable circuits to augment existing radio relay systems.

b. The 706th Combat Area Signal Group, Army, of the 30 (US) Army provides the army area communication system. Each of the six combat area signal battalions of the combat area signal group, army, has four combat signal companies; each of these companies is capable of installing, operating, and maintaining one area signal center. The 774th Signal Cable Construction Battalion of the combat area signal group, army, provides wire and cable construction support as needed. A graphic display of the employment of the signal cable construction battalion is shown in figure 5.

c. The cable lines (fig. 5) will be installed by the 774th Signal Cable Construction Battalion.

64. Headquarters and Headquarters Detachment

a. The headquarters and headquarters detachment of the cable construction battalion is located near the headquarters of the 706th Combat Area Signal Group, Army. It is located to coordinate operations of the signal cable construction battalion with group headquarters.

b. Communication between the headquarters and headquarters detachment and the signal cable construction companies is provided by the army area communication system. The detachment has access to the army area communication system through signal center Monarch 701.

c. Signal supply support for the cable construction battalion is furnished by the army signal supply and maintenance battalion. The headquarters and headquarters detachment can draw supplies from the army signal depot.

65. Cable Splicer and Repair Section

a. Cable splicing teams in this section provide limited rehabilitation and maintenance of existing indigenous cable in the field army area, and limited field cable repair for the battalion.

b. The carrier equipment repairman will remain in the battalion headquarters area to maintain unattended repeaters, as required.

66. Company A Employment

a. Company A of the 774th Signal Cable Construction Battalion is attached to the 762d Combat Area Signal Battalion for logistical support. Company A will draw signal supplies from the army signal supply and maintenance point in the 2(US) Corps zone. This company also can draw signal supplies from units that are being supported.

b. Communications between Company A and its parent unit are provided by the army area communication system. Company A has access to the army area communication system through signal center Monarch 724.

c. When an element of the company must remain away from its parent unit, it will mess and bivouac with the unit being supported.

d. Company A is assigned the following mission:

- (1) Installation and maintenance of cable

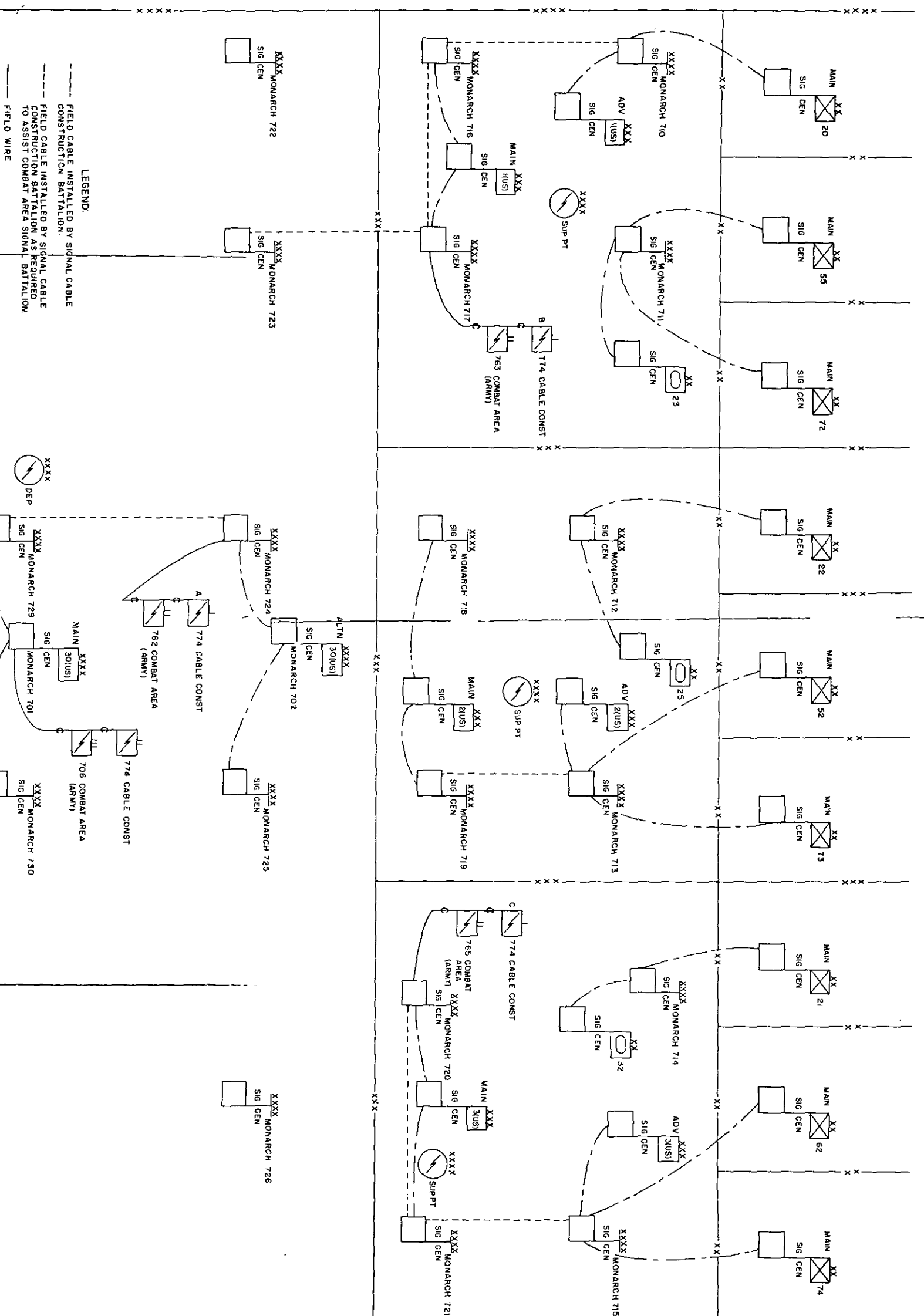


Figure 5. Type operation of a signal cable construction battalion.

lines from 30(US) Army MAIN (Monarch 701) to area signal centers. Monarch 729 and 730.

- (2) Installation and maintenance of cable lines from 30(US) Army ALTERNATE (Monarch 702) to area signal centers Monarch 724 and 725.
- (3) Installation of cable lines from area signal center Monarch 724 to area signal center Monarch 729.
- (4) Installation of cable lines from 2(US) Corps MAIN to area signal centers Monarch 718 and 719.
- (5) Installation of cable lines from area signal center Monarch 712 to 25th Armored Division, and to the 22d Infantry Division.
- (6) Installation of cable lines from area signal center Monarch 713 to Corps ADVANCE to area signal center Monarch 719, to the 52d Infantry Division, and to the 73d Infantry Division.

e. The construction elements of the company that performed the mission described in *d*(1) and (2) above will remain at the even-numbered area signal center that they supported, to provide maintenance when required. The construction elements of the company that performed the mission described in *d*(3) through (6) will return to their parent company as soon as the cable lines are installed.

67. Company B Employment

a. Company B is attached to the 763d Combat

Area Signal Battalion, Army, for logistical support. Company B will draw supplies from the army signal supply and maintenance point in the 1(US) Corps zone. This company may also draw supplies from the units that they support.

b. Communications between Company B and its parent unit are provided by the army area communication system. Company B has access to the army area communication system through area signal center Monarch 717.

c. When an element of the company must remain away from its parent unit, it will mess and bivouac with the unit that is being supported.

d. Company B is assigned the following mission:

- (1) Installation of cable lines from area signal center Monarch 717 to area signal centers Monarch 716 and 723, and to 1(US) Corps MAIN.
- (2) Installation of cable lines from area signal center Monarch 716 to 1(US) Corps MAIN and to area signal center Monarch 710.
- (3) Installation of cable lines from area signal center Monarch 710 to 1(US) Corps ADVANCE and to the 20th Infantry Division.
- (4) Installation of cable lines from area signal center Monarch 711 to the 23d Armored Division, to 72d Infantry Division, and to the 55th Infantry Division.

e. As soon as these cable lines are installed, the installation teams will return to their parent company.

68. Company C Employment

a. Company C is attached to the 765th Combat Area Signal Battalion, Army, for logistical support. Company C will draw supply support from the army signal supply and maintenance point in the 3(US) Corps zone. Company C may also draw supplies from the units it supports.

b. Communications between Company C and its parent unit are provided by the army area communication system. Company C has access to the army area communication system through the area signal center Monarch 720.

c. When any element of this company must remain away from its parent unit, it will mess and bivouac with the unit being supported.

d. Company C is assigned the following mission :

- (1) Installation of cable lines from 3(US) Corps MAIN to area signal centers Monarch 720 and 721.
- (2) Installation of cable lines between area signal centers Monarch 720 and 721.
- (3) Installation of cable lines from area signal center Monarch 714 to 32d Armored Division and to 21st Infantry Division.
- (4) Installation of cable lines from area signal center Monarch 715 to area signal center Monarch 721, 3(US) Corps ADVANCE, 62d Infantry Division, and 74th Infantry Division.

e. As soon as these cable lines are installed, the construction teams will return to their parent company.

APPENDIX

REFERENCES

1. General

This appendix contains a selected list of publications pertinent to signal cable construction battalion operations.

2. Publications

AR 220-60	Battalions, Battle Groups, Squadrons; General Provisions.
AR 220-70	Companies; General Provisions.
AR 320-5	Dictionary of United States Army Terms.
AR 320-50	Authorized Abbreviations and Brevity Codes.
AR 750-5	Maintenance Responsibilities and Shop Operation.
AR 750-8	Command Maintenance Inspections.
AR 750-625	Maintenance Inspections and Reports; Signal Equipment.
DA Pam 108-1	Index of Army Motion Pictures, Film Strips, Slides, and Phono-Recordings.

- DA Pam 310-1 Index of Administrative Publications (Army Regulations, Special Regulations, Department of the Army Pamphlets, Commercial Traffic Bulletins, Military Traffic Management Bulletins, General Orders, Bulletins, and Circulars).
- DA Pam 310-2 Index of Blank Forms.
- DA Pam 310-3 Index of Training Publications (Field Manuals, Reserve Officers' Training Corps Manuals, Training Circulars, Army Training Programs and Mobilization Training Programs, Army Subject Schedules, Army Training Tests, War Department and Department of the Army Posters, and Firing Tables and Trajectory Charts).
- DA Pam 310-4 Index of Technical Manuals, Technical Bulletins, Supply Bulletins, Lubrication Orders, and Modification Work Orders.
- DA Pam 310-5 Index of Graphic Training Aids and Devices.

- DA Pam 310-7 Index of Tables of Organization and Equipment, Tables of Organization, Type Tables of Distribution, and Tables of Allowances.
- DA Pam 310-21 Index of Supply Manuals: Signal Corps.
- FM 21-5 Military Training.
- FM 21-6 Techniques of Military Instruction.
- FM 21-30 Military Symbols.

[AG 322 (17 Jul 59)]

By Order of *Wilber M. Brucker*, Secretary of the Army:

L. L. LEMNITZER,
General, United States Army,
Chief of Staff.

Official:

R. V. LEE,
Major General, United States Army,
The Adjutant General.

Distribution:

Active Army:

CNGB (1)
Tech Stf, DA (2) except
CSigO (10)
Tech Stf, BD (1)
USCONARC (5)
OS Maj Comd (10)
OS Base Comd (5)
MDW (1)
Armies (10) except
First US Army (12)
Corps (2)
Div (2)
Bde (2)
USMA (10)
USAWC (5)
Br Svc Sch (5) except
USAIS (40)
USAAMS (80)
USAES (150)
USASCS (700)

USA Sig TC (25)
PMST Sr Div Units (2)
PMST Mil Sch Div
Units (2)
PMST Jr Div Units (2)
GENDEP (2)
Sig Sec, GENDEP (2)
Sig Dep (2)
USARACS (50)
Mil Dist (1)
USA Corps (Res) (1)
Sector Comd, USA Corps
(Res) (1)
MAAG (2)
Mil Msn (2)
Units org under fol TOE:
11-45 (10)

NG: State AG (3); units—same as Active Army except allowance is one copy to each unit.

USAR: Same as Active Army except allowance is one copy to each unit.

For explanation of abbreviation used, see AR 320-50.